AMENDMENTS TO THE CLAIMS

Please amend claims 1, 2, 4, 16, 19, 20, 22, 24, and 26 as indicated below. Deletions appear in ~~strikethrough font~~, and additions are underlined. The listing of claims below will replace all prior versions and listings of claims in the application.

Complete listing of claims Complete listing of claims

1. (Currently Amended) An isolated population of adult multipotent stem cells from dedifferentiated chondrocytes of mammal articular cartilage characterised in that they are positive for ~~the following~~ at least one surface antigen~~s~~ chosen from: CD9, CD13, CD29, CD44, CD49a, CD49b, CD49c, CD49e, CD54, CD55, CD58, CD59, CD90, CD95, CD105, CD106, CD166, HLA-1 and beta2-microglobulin.

2. (Currently Amended) An isolated population of adult multipotent stem cells according to claim 1, characterised in that they are negative for ~~the following~~at least one surface antigen~~s~~ chosen from: CD10, CD11b, CD14, CD15, CD16, CD18, CD19, CD28, CD31, CD34, CD36, CD38, CD45, CD49d, CD50, CD51, CD56, CD61, CD62E, CD62L, CD62P, CD71, CD102, CD104, CD117, CD133, and HLA-II.

3. (Original) An isolated population of adult multipotent stem cells according to claim 1, characterised in that the cells are of human origin.

4. (Currently amended) An isolated cell population derived from an isolated population of adult multipotent stem cells according to ~~any of claims 1 through 3~~ claim 1, characterised in that it expresses at least one characteristic of a specialised cell.

5. (Original) An isolated cell population according to claim 4, characterised in that it expresses at least one characteristic of a chondrocyte.

6. (Original) An isolated cell population according to claim 4, characterised in that it expresses at least one characteristic of an osteocyte.

7. (Original) An isolated cell population according to claim 4, characterised in that it expresses at least one characteristic of an adipocyte.

8. (Original) An isolated cell population according to claim 4, characterised in that it expresses at least one characteristic of a myocyte.

9. (Original) An isolated cell population according to claim 4, characterised in that it expresses at least one characteristic of a cardiomyocyte.

10. (Original) An isolated cell population according to claim 4, characterised in that it expresses at least one characteristic of a neuron.

11. (Original) An isolated cell population according to claim 4, characterised in that it expresses at least one characteristic of an astrocyte.

12. (Original) An isolated cell population according to claim 4, characterised in that it expresses at least one characteristic of an oligodendrocyte.

13. (Original) An isolated cell population according to claim 4, characterised in that it expresses at least one characteristic of an epithelial cell.

14. (Original) An isolated cell population according to claim 4, characterised in that it expresses at least one characteristic of a hepatocyte.

15. (Original) An isolated cell population according to claim 4, characterised in that it expresses at least one characteristic of a pancreatic cell.

16. (Currently amended) An isolated transgenic cell population derived from the isolated cell population according to ~~any of claims 1 through 15~~ claim 1, characterised in that its genome has been modified by the insertion of pre-selected isolated DNA, by replacing a segment of the cellular genome with pre-selected isolated DNA or by inactivation of at least one portion of the cellular genome.

17. (Original) An isolated transgenic cell population according to claim 16 characterised in that its genome has been modified by non-viral transduction.

18. (Original) An isolated transgenic cell population according to claim 16 characterised in that its genome has been modified by viral transduction.

19. (Currently amended) Use of an isolated cell population according to ~~any of claims 1 through 18~~ claim 1 to prepare a pharmaceutical composition for the treatment of lesions, degenerative and genetic diseases of: cartilage, bone, muscle, heart, central and peripheral nervous system, skin, liver and pancreas.

20. (Currently amended) A pharmaceutical composition that includes a cell population according to ~~any of claims 1 through 18~~ claim 1 and an acceptable pharmaceutical vehicle.

21. (Original) A pharmaceutical compound according to claim 20 which also includes an additional component selected among growth factors, cytokines, chemokines, extracellular matrix proteins, drugs, synthetic polymers and mixtures.

22. (Currently amended) A pharmaceutical composition according to claim 20 ~~or 21~~ wherein the cells and, optionally, the additional components, are included in a three-dimensional biocompatible synthetic matrix.

23. (Original) A pharmaceutical composition according to claim 22 wherein said three-dimensional biocompatible synthetic structure is of a microparticle, microsphere, nanoparticle or nanosphere type.

24. (Currently amended) Method for the in vitro evaluation of the cellular response to biological or pharmacological agents or to the combinatorial libraries of such agents, which includes:

a) isolating a cell population according to ~~any of claims 1 through 18~~ claim 1 from an individual or statistically significant population of same;

b) optionally differentiating the isolated cells to a specific cell type;

c) expanding the cells in culture;

d) optionally differentiating the isolated cells expanded to a specific cell type;

e) putting the culture in contact with one or more biological or pharmacological agents or with a combinatorial library of those agents and

f) evaluating the possible biological effects of those agents on the cultured cells.

25. (Original) Method according to claim 24 wherein said biological or pharmacological agents to evaluate include peptides, antibodies, cytokines, chemokines, growth factors, hormones, viral particles, antibiotics, inhibitor compounds, chemotherapy agents, cytotoxic agents, mutagens, food additives, pharmaceutical compositions and vaccines.

26. (Currently amended) Method for the in vivo evaluation of the cellular response to biological or pharmacological agents or to the combinatorial libraries of such agents, which includes

a) isolating a cell population according to ~~any of claims 1 through 18~~ claim 1 from an individual or statistically significant population of same;

b) optionally differentiating the isolated cells to a specific cell type;

c) expanding the cells in culture;

d) optionally differentiating the isolated cells expanded to a specific cell type;

e) implanting the cells, alone or within biologically compatible compositions, in an experimental animal model;

f) administering one or more biological or pharmacological agents to the grafted animals;

g) evaluating the possible biological effects of those agents on the implanted cells.

27. (Original) Method according to claim 26 wherein the experimental animal used is an immunodeficient mouse strain.

28. (Original) Method according to claim 26 wherein the cells are implanted in the experimental animal inside a three-dimensional biocompatible matrix.

29. (Original) Method according to claim 26 wherein the cells are implanted in the experimental animal inside a microparticle, microsphere, nanoparticle or nanosphere type structure.

30. (Original) Method according to claim 26 wherein the biological or pharmacological agents to evaluate include peptides, antibodies, cytokines, chemokines, growth factors, hormones, viral particles, antibiotics, inhibitor compounds, chemotherapy agents, cytotoxic agents, mutagens, food additives, pharmaceutical compositions and vaccines.